Homicide Data Collection: A Review of Four State Agencies

Commonwealth of Massachusetts

Executive Office of Public Safety
Programs Division

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This document was prepared by the Massachusetts Statistical Analysis Center, September 2002.

This report can also be downloaded in PDF from the Executive Office of Public Safety Programs Division Web Page at http://www.state.ma.us/ccj.

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This project was supported by the Justice Research and Statistics Association. Points of view expressed in this document are those of the authors and do not necessarily represent the official position or policies of the Justice Research and Statistics Association.

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Acknowledgements

The Statistical Analysis Center would like to extend our appreciation to those we interviewed for taking time from their busy schedules to explain their death data collection process. Specifically, we thank Daniel Bibel, Director of the Massachusetts State Police Crime Reporting Unit, Dr. Richard Evans, Chief Medical Examiner of the Office of Chief Medical Examiner, Karin Barrett, Assistant Registrar, and Jane Purtill, Projects Coordinator of the Department of Public Health Registry of Vital Records and Statistics, and Victoria Ozonoff, Director of the Department of Public Health's Injury Surveillance Program. Without their patience and willingness to assist us, this report would not be possible. The Statistical Analysis Center (SAC) would also like to thank our colleagues in the Executive Office of Public Safety Programs Division for their continued support and assistance throughout this project.

This project is supported with funding from the Justice Research and Statistics Association (JRSA). Staff of JRSA, specifically Stan Orchowsky, Ph.D. and Lisa Walbolt, deserve special thanks for their continued patience and support of this project.

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Executive Summary

This project is supported by a grant from the Justice Research and Statistics Association (JRSA) to aid in the identification of the challenges and successes of research and data collection regarding incidents of homicide and suicide, and the potential use of National Incident-Based Reporting System (NIBRS) as a tool for collecting these data.

The Massachusetts Statistical Analysis Center (SAC) conducted interviews with personnel from four state agencies that manage the collection of homicide and suicide data for the Commonwealth. The purpose of the interviews was to gather information regarding the data elements collected by each agency both in electronic and paper-based systems, as well as to ascertain the quality and completeness of data being collected. The interviews gathered information on data collection procedures, data sharing, and issues that often impede agencies in their collection of these data. Positive aspects of data collection instrumentation and the cooperative inter-agency relationships already established were highlighted. Personnel from the following agencies were interviewed: the Massachusetts State Police Crime Reporting Unit, the Office of the Chief Medical Examiner, the Registry of Vital Records and Statistics, and the Injury Surveillance Program at the Department of Public Health.

All four agencies interviewed collect data on homicides in an electronic format. All but one agency collects information regarding suicides. The complexity of the established databases and the ease of generating analytic products based on the data collected vary by agency. Few variables are collected across all agencies and, due to varying definitions explaining what constitutes a homicide, the overall number of homicides for any given year is not consistent across agencies.

The agencies are agreeable to sharing their data (often by law the data is public information); however, the agencies prefer that the purposes of the data request are identified and the qualifications of the person performing the analysis are demonstrated. Often, the agencies are burdened with limited staff and inadequate funding to upgrade/maintain their data systems and procedures. Agencies conveyed that if they were staffed and equipped properly, overall data quality would improve and a more proactive analysis of homicide and suicide data would be possible.

Introduction

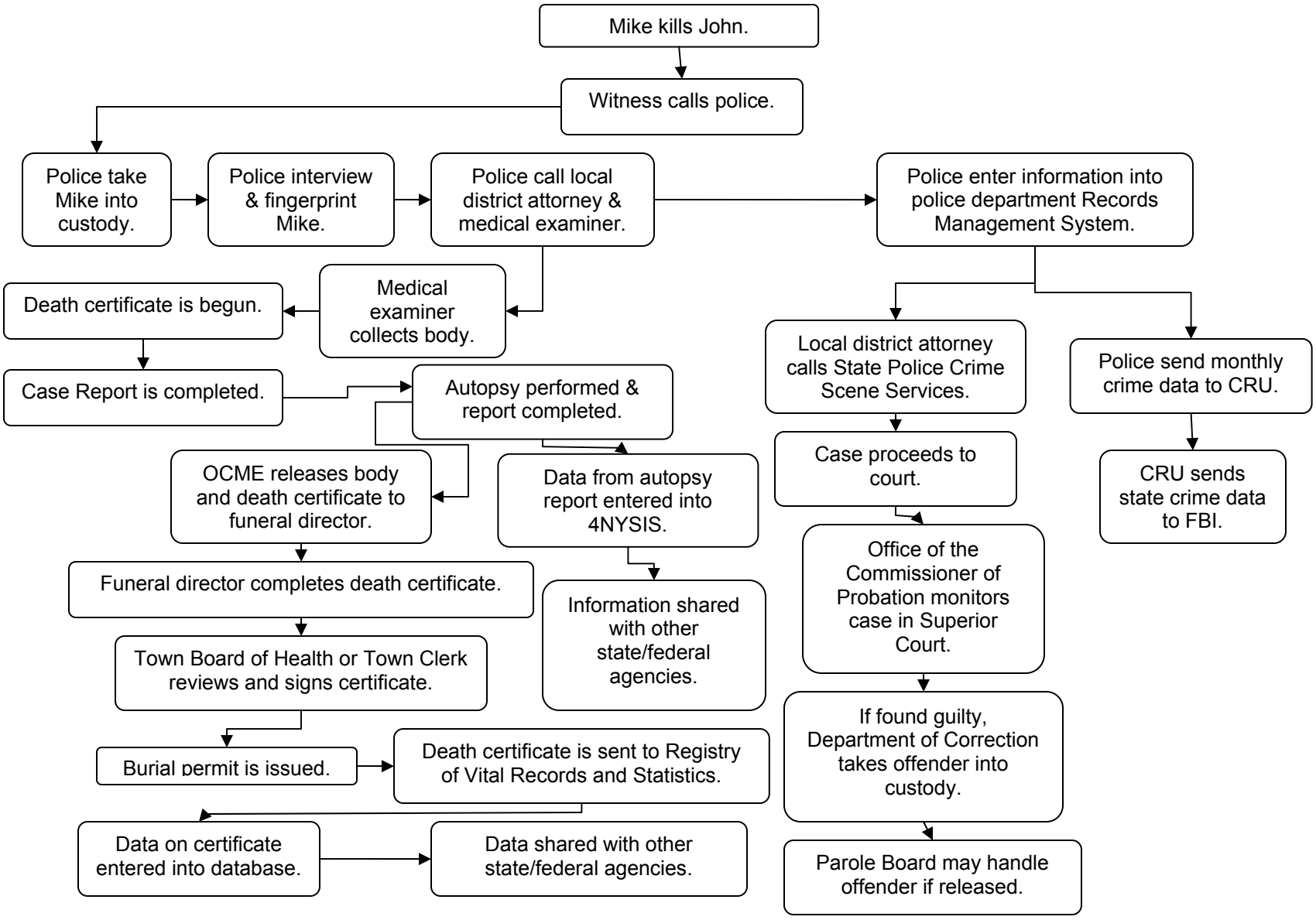
The following is a fictionalized account of a homicide case, highlighting the numerous agencies involved in the handling of such a case and the potentially large amount of data produced by one incident (see Chart 1).

In Seaville, Massachusetts, Mike Smooth is upset that John Doe has not paid him the $500 he owes him. Mike finds John at the corner bar and an argument ensues. The bartender calls the Seaville Police Department. The call is entered into the department's Computer Aided Dispatch (CAD) system and a cruiser is sent to the scene. Before police arrive, the argument ends with Mike assaulting John on his head with a liquor bottle. Unfortunately, John does not survive the blow to the head. When the police arrive, Mike is standing over the body with a broken bottle, mumbling, "I didn't mean to kill him." The officers take Mike Smooth into custody while the local district attorney and the Office of the Chief Medical Examiner (OCME) are notified of the homicide. The local district attorney dispatches the State Police Crime Services to photograph the crime scene and to interview witnesses. Meanwhile, back at the police station, the police have interviewed and fingerprinted the suspect. The responding officers review their notes and complete various related forms via the Records Management System (RMS). On a monthly basis, the police department submits the town's crime data to the Crime Reporting Unit (CRU) at the Massachusetts State Police; John Doe's murder will be included in this month's data.

The OCME arrives at the crime scene to collect John Doe's body. Since this incident has been considered a homicide, the OCME automatically has jurisdiction over the victim's body. Back at the OCME, a death certificate is begun. An autopsy is scheduled to be performed on John Doe later that afternoon. The medical examiner then completes a case report which describes, among other things, the crime scene. After the autopsy is performed, the medical examiner completes the autopsy report. Both reports are entered by administrative assistants into the OCME database. John Doe's body, along with the death certificate, is then released to the local funeral director. The funeral director completes the remaining sections of the death certificate with the assistance of the decedent's family. The local Board of Health reviews the certificate to make certain everything is complete and issues a burial permit to the funeral director. In towns with no Board of Health, the town clerk, if designated, will approve the certificate and issue the burial permit. The death certificate is then forwarded to the Department of Public Health's Registry of Vital Records and Statistics. There, the certificate is entered into the Registry's database. Data from Vital Records is then shared with the Injury Surveillance Program at the Department of Public Health. The local district attorney's office will prosecute the homicide case, which proceeds through the court system, then often through the Department of Correction and then the Parole Board.

Each homicide leaves a trail of paper (and data) that documents the case's progress through the state system. Using the above scenario as an example, nine state agencies, two local agencies, and one private agency were involved. For the purposes of this report, the SAC will examine the data collection procedures employed by four state agencies involved in the homicide/suicide collection and analysis process: the Massachusetts State Police Crime Reporting Unit, the Office of the Chief Medical Examiner, the Registry of Vital Records and Statistics, and the Injury Surveillance Program at the Department of Public Health.

Chart 1. Flow of Homicide Data and Case Related Action



Background

For the purposes of this project, the Massachusetts Statistical Analysis Center (SAC) solicited the participation of Massachusetts police departments and state agencies through both written memorandums and follow up telephone calls. As explained to the police departments and state agencies, the purpose of the project was to determine:

> (1) the existence of National Incident-Based Reporting System (NIBRS) data elements in departments' electronic and paper-based systems; (2) the quality and completeness of data being collected; (3) the procedures that would need to be implemented to collect data elements not being collected; and (4) the additional data elements that should be obtained for homicides, and the feasibility of obtaining these data elements.

Police Departments

In preparation for this project, the SAC reviewed 1999 and 2000 homicide data as reported by Massachusetts police departments to the Massachusetts State Police Crime Reporting Unit. Seven departments were selected to participate and reported either UCR or NIBRS. While departments were chosen by the total number of homicides, six of the seven chosen departments' total homicides were under nine annually. In January 2002, a memorandum was sent to the seven departments requesting participation in this project and explaining the goals, objectives, and outcomes of the project.

The SAC noted that departments would experience a very limited administrative burden by participating in this project. By agreeing to participate, departments would grant the SAC access to their departments' electronic and paper-based records for all closed homicide cases for calendar year 2000, and all open and closed cases for the first six months of calendar year 2001. The SAC also requested access to department personnel responsible for the collection of these data for the purpose of conducting one or two interviews to better understand the data collection process.

The SAC received three responses to the request for participation. Of the responses, two police departments (both with homicide totals under 7 per year) agreed to participate while another department decline participation. The SAC further reviewed homicide data and found no departments with a sizable or consistent history of homicides. These obstacles necessitated a revision of the project, excluding Massachusetts police departments in the homicide study.

State Agencies

The SAC also contacted several state agencies which collect various data including homicide and suicides. Through a review of available data, it was determined that three state agencies should be included in this project, the Massachusetts State Police (MSP) Crime Reporting Unit (CRU), the Department of Public Health Injury Surveillance Program, and the Office of the Chief Medical Examiner. As a result of initial project exploration, the Department of Public Health's Registry of Vital Records and Statistics was identified as a critical stakeholder and also asked to participate. All four agencies agreed to be interviewed for this project.

Methodology

Interviews were conducted with state agency representatives to document the procedures in which homicide and suicide data are collected, stored, analyzed, and distributed, as well as any outstanding issues that affect the data and/or the agency that collects the data. The SAC utilized the interview template supplied by JRSA as a foundation for the interview process, and included additional questions to further understand the data collection procedures (Appendix A). Topics addressed in the interviews included: the data collection process, variables collected, complexities of the data, data difficulties, and any factors that affect the data or an agency's ability to process, analyze, or distribute the data. Interviews generally lasted 60 to 90 minutes in length, were informal in nature, and were not recorded on audio or videotape. Following each interview, the SAC compiled a summary of the interview from field notes to best capture the information acquired.

The SAC also regularly attended the Traumatic Death Working Group (Group) meetings, which brings together key data holders with access to general death data. This Group is comprised of staff from the Injury Surveillance Program and Registry of Vital Records and Statistics at the Massachusetts Department of Public Health, and the Office of the Chief Medical Examiner. This working group was formed in response to the proposed National Violent Death Reporting System (NVDRS) which will collect state data on homicides and suicides for use in planning and evaluating policies aimed at reducing violent deaths. The intent is to compile and combine data from medical examiners, police, crime labs, and death certificate registrars, providing a complete understanding of when, where, and how violent deaths occur. The Group serves as the foundation for the possible establishment of a Massachusetts NVDRS. Further, the meetings assisted the SAC in gaining insight into the common issues surrounding death data as well as in strengthening the relationships with other Group participants.

Homicide and Suicide Data Collection Protocols by Four Massachusetts State Agencies

MASSACHUSETTS STATE POLICE CRIME REPORTING UNIT

Background

The Massachusetts State Police Crime Reporting Unit (CRU) serves as the link between state, local, and campus police departments and the FBI. The CRU is responsible for the gathering, upkeep, analysis, and reporting of Massachusetts crime data, which includes Uniform Crime Reports (UCR), Supplemental Homicide Reports (SHR), and National Incident Based Reporting System (NIBRS) data.

The CRU is comprised of the Director, who serves as the Commonwealth's UCR/NIBRS Program Manager, and two research analysts. The SAC met with the Director to discuss UCR, SHR, and NIBRS as it related to homicide and suicide data collection.

Overview of Data Collection

In the Commonwealth of Massachusetts, crime data reporting by police departments is voluntary with approximately 90% of Commonwealth police departments reporting data to the CRU. Currently, 213 departments report NIBRS machine readable data, reflecting a population of 3.2 million (55% of the Commonwealth's population and 40% of the crime volume). Summary UCR data is reported by 170 police departments.

There are several reasons why approximately 10% of the police departments do not report crime data. In central and western Massachusetts, the majority of police departments are very small or part-time departments that may not have enough time or staff to report crime data. Also, as many of the smaller or part-time departments do not have the personnel to perform proper homicide investigations, the jurisdiction for these matters is handed over to the Massachusetts State Police detective unit within the local district attorneys' offices. The district attorneys' offices do not report crime data to the CRU. Although infrequent, another problem is agency sharing or overlapping jurisdictions. For example, if three departments arrive at a crime scene (e.g., local, state police, and college police), there may be issues regarding who claims jurisdiction and who is responsible for reporting the crime. In spite of these obstacles, the CRU estimates that 99% of the homicides that occur in Massachusetts are captured in reported crime statistics.

NIBRS and SHR Data

Homicide data is reported by law enforcement to the CRU through two mechanisms: NIBRS and SHR (for UCR reporters). The CRU extracts NIBRS homicide data and converts it into the Supplemental Homicide Report (SHR) (Appendix B) format. With the conversion of the NIBRS data to the SHR format, details, such as date and time, address and related crime information, are lost. Conversely, the free text field at the bottom of the SHR often makes the circumstances of the incident clearer.

The CRU has had data discontinuity problems with police departments coding *attempted* homicides as *completed* homicides because NIBRS does not code for attempted murder. NIBRS considers an attempted homicide an aggravated assault. Last year in Massachusetts, police departments reported 17 (attempted) homicides that should have been reported as aggravated assaults. The CRU has worked closely with the FBI on this issue. In April 2002, the FBI conducted data quality tests on nine police departments who were submitting NIBRS data.

The CRU utilizes standard federal definitions, which are printed on the back of the SHR. The following non-NIBRS data elements are collected on the SHR: case number, location of offense, automatic weapon indicator, and circumstances.

Table 1. Supplemental Homicide Report Variables

Case Number	Offender's Race
Situation	Offender's Ethnicity
Victim's Age	Automatic Weapon Used
Victim's Sex	Type of Weapon Used
Victim's Race	Relationship of Victim to Offender
Victim's Ethnicity	Circumstance of Offense
Offender's Age	Location of Offense
Offender's Sex	

Further, NIBRS and SHR data are combined into an Access database. The database contains homicide incident information from 1986 and forward, with approximately 2,000 - 2,200 cases. Data include incident, victim, and offender information. The database itself is used on an ad hoc basis mostly for information requests. With a limited staff, the collection, maintenance, and analysis of the data are taxing on the CRU.

Reliability of information collected

The CRU identified two major obstacles that affect the quality of its data: limited staffing and lack of funding. This had led to concerns about the reliability of the data. However, in addition to the edit checks performed by the FBI, there are simple comparisons that can be made to reduce errors. For example, a comparison could be made between the number of victims per month reported on Return-A and the number of victims reported per month on SHR. There are currently no other additional steps taken to ensure accuracy of the data collected.

Amendments to UCR, NIBRS, and SHR

While the Director could not specify the number of cases that are generally amended, he indicated that departments have made amendments to their SHR, NIBRS, or UCR data, although infrequently. Changes to the SHR can be completed over the telephone and these changes are accepted by the FBI. To update NIBRS, a department would need to submit a new form with the new information completed. Amendments to NIBRS are allowed to be made up to 2 years after incident. Police can submit updated UCR data electronically.

While infrequent, there are occasions when the data are affected when victims of a crime dies as a result of their injuries. For example, if someone is charged with aggravated assault in June and the victim dies in July as a result of injuries incurred by that assault, June's data would remain the same while July's data would begin with "minus one" aggravated assault and "plus one" homicide.

Suicides

Currently, the CRU does not collect any information regarding suicides. The CRU Director believed an argument could be made for the importance of viewing suicide as not only a public health issue but a public safety one as well. Further, collection of suicide information would shed light on law enforcement officer suicides as well as link murder/suicide (something NIBRS does not currently link). Given that the police respond to most suicide scenes, police departments have offense codes for suicides which are tracked by their Records Management System. While there are data collection issues including changing the data collection form and the database as well as funding concerns, it is believed that it would be fairly simple to collect data on a statewide level using these offense codes.

Sharing data

The CRU is open to sharing databases containing homicide information. In the past, it has shared its data with the Massachusetts Department of Public Health, the Executive Office of Public Safety, and the FBI. While there are no confidentiality issues regarding the data (no names, addresses, or other identifiers in the data), the CRU is cautious in sharing its more complex NIBRS dataset with those inexperienced with analysis.

OFFICE OF THE CHIEF MEDICAL EXAMINER

Background

The Office of the Chief Medical Examiner (OCME) is governed by Massachusetts General Laws Chapter 38, and is under the supervision and control of the Executive Office of Public Safety (EOPS). The Chief Medical Examiner (CME) is responsible for the comprehensive medicolegal investigative services in the Commonwealth. The CME may also appoint district medical examiners to conduct appropriate medicolegal investigations in their jurisdiction. The Office of the Chief Medical Examiner is responsible for determining the cause and manner of certain deaths, such as homicide, suicide, natural cause, accident, undetermined, an un-witnessed death, or a death that occurred less than 24 hours after hospital admission.

According to Massachusetts General Law, the CME must be notified on certain occasions when a death has occurred, and he/she then determines if further investigation is warranted. According to Massachusetts General Law (Ch.38, §3), referrals must be made to the Office of the Chief Medical Examiner (OCME) in nineteen instances. Those instances are: (1) criminal violence may have taken place, (2) accident or unintentional injury, (3) suicide, (4) suspicious or unusual circumstances, (5) death following an unlawful abortion, (6) occupational illness or accident, (7) in custody in any jail or correctional facility or in any mental health or mental retardation institution, (8) suspicion of abuse of a child, family, or household member, elder person, or disabled person exists, (9) poison or acute or chronic use of drugs or alcohol, (10) skeletal remains, (11) associated with diagnostic or therapeutic procedures, (12) sudden death of person in apparent good health, (13) death within 24 hours of admission to a hospital or nursing home, (14) any public or private conveyance, (15) fetal death, where gestation has been more than 20 weeks or weight is 350 grams or more, (16) all children under the age of 18, (17) any person found dead, (18) any death at emergency treatment facility, medical walk-in center, day care center, or under foster care, or (19) occurring under circumstance as defined by regulations. If the CME is of the opinion that the death was due to violence, unnatural means, or to natural causes that require further investigation, the CME takes jurisdiction. The body of the deceased is not to be moved, and the scene where the body is located is not to be disturbed, until either the medical examiner or the district attorney either arrives on at the scene or provides directions as to what is to be done at the scene. In specific cases of unnatural or suspicious death where the district attorney's office is to be notified, the OCME is not permitted to disturb the body or the scene without permission from the district attorney's office. The medical examiner is responsible for making arrangements for transport of the body.

The CME is entitled to review and receive copies of medical records, hospital records, or information deemed relevant to establishing the cause and manner of death. It is also incumbent upon the CME to notify the local district attorney of the death of a child immediately following receipt of a report that such a death occurred. The CME is the statutorily designated chair of the state Child Fatality Review Team, to which local teams chaired by a district attorney report. The local teams are responsible to conduct case reviews of child deaths and provide written recommendations to the state team for consideration. After the OCME has completed the investigation or examination, the body may be released to the person with proper legal authority to receive it (e.g., funeral director). If the body is unidentified or unclaimed after the investigation is completed, the OCME releases it to the Department of Public Welfare.

There are about 56,000 deaths each year in Massachusetts, with approximately 13,000 reported to the OCME. Of these reported deaths, the OCME will investigate around 4,500 cases. An autopsy is conducted in about two-thirds of the 4,500 cases, and the remaining cases are viewed. When a case is viewed, there are no surgical procedures performed, but x-rays are taken and a toxicology report is generated. Autopsies are always conducted in homicide cases, and in the majority of suicide cases.

The main office of the OCME is located in Boston, with three satellite offices situated in Worcester, Holyoke, and Bourne. A few autopsies are conducted each year in Pittsfield under contract services. The CME noted the main office building is relatively new (built in 1995), but the satellite offices are in poor condition. According to the CME, the medical examiners office has been level funded since 1982 at $3.2 million; this is 25 percent of what comparable medical examiner's offices receive in other states.

Overview of Data Collection

The OCME uses the case management system *4NSYS*, a "homegrown" system developed and implemented as a stop-gap measure in response to Y2K compliance needs. Due to fiscal constraints, the OCME can not afford to hire a computer specialist to develop a more comprehensive system or the licensing for enhanced software. Also, as a result of retirement, the CME noted there are few remaining employees that can operate the old system and bridge the gap between the two systems. As a result of budgetary constraints, the Public Safety Chief Information Officer assists in the maintenance of the database.

The OCME is responsible for completing sections of the death certificate which is then forwarded to the Massachusetts Department of Public Health at the Registry of Vital Records and Statistics. The death certificate is not stored in *4NSYS*. A full text of the autopsy and demographic data is entered into the *4NSYS* database by administrative assistants. The case identifiers are the last name and a number assigned by *4NSYS*. Due to the complexity in determining the cause or manner of death, records may be updated and amended at any time. However, the CME noted the satellite offices are often behind in generating their data for reports as there are gaps in data entry. The annual report, which is written by the CME, is often delayed every year because of missing cases which affect the reliability of the statistics. The CME expressed concern with system security – as information, including digital photographs of the decedent could easily be relayed to the web.

The CME is responsible for promulgating rules for the disclosure of autopsy reports, which are not public records, for individuals who are legally entitled to receive them. All information is confidential except that which is contained on the death certificate. Autopsy information is given to the legal next of kin, except in the case of homicide; in those cases it is given directly to the district attorney who disseminates the information to the family.

OCME Case Report

The OCME Case Report (Appendix C) is a one-sided case intake form consisting of four pages. The ten sections that make up the report are: scene data, case data, jurisdictionally declined

cases, removal data, funeral data, motor vehicle accident data, infant/child data, suicide data, narrative, and prescription medications at scene.

The first page begins with the Scene Data section. This section describes the location of the death and information on the reports of the death. The Case Data section contains information specific to the decedent such as their name, date of birth, age, race, sex, and marital status. There are yes or no questions about the death and suspected cause of death. The next section is to be completed if the medical examiner jurisdictionally declines the case. In this section, the cause and manner of death are also recorded. The Removal Data section details the person responsible for the removal of the body. The Funeral Data lists the funeral director and next of kin information.

The second page contains data sections related to motor vehicle accidents, infant/child death, and suicide. The Motor Vehicle Accident Data section includes information about the accident. The Infant/Child Data section lists the information of decedent's mother, the cause of death, and persons living in residence at the time of death. The Suicide Data section is completed if suicide is suspected. Information collected includes organ donor information, whether a suicide note had been found at the scene, if a poison/drug or other chemical agent is suspected as the cause of suicide, and whether there is a history of suicide. The third page is the Narrative section for the medical examiner's notes. Page four lists details of any prescription medications found at the scene.

The following table describes the variables collected by the Case Report as completed by the medical examiner.

Table 2. Case Report Variables

Scene data—Describes location of death and information on the person who reported the death.	
Date	Reporter's city/town or hospital
Time	Location of scene
Telephone at scene	Approximate weight
Death reported by	
Case data—Describes decedent's demographic data as well as death.	
Name of decedent	Name of medical examiner at scene
Date of birth	Police to be notified of post time
Age	Suicide suspected
Sex	Family expressed interest in donation
Race	Death occur at workplace
Social security number	Signs of trauma
Residence	Alcohol at scene
Marital Status	Illicit drugs at scene
Place of death	Deceased decomposed
Date/time of admission (if hospital)	Prescription medication at scene
Last seen alive by	Death due to motor vehicle accident
Pronounced by whom	Under 18
D.O.A.	Name/telephone of primary care physician

Table 2. Continued

Case jurisdictionally declined data—Completed only in cases declined by the OCME.	
Medical examiner declining case	Cause of death
Doctor certifying death	Manner of death
Doctor's telephone number	Approve cornea, tissue, organ donation
Removal data—Describes the removal of the decedent.	
Ordered by	Removal agent
Time	
Funeral data	
Funeral director contact information	Relationship
Next of kin	Kin contact information
Motor vehicle accident data	
Decedent driver/passenger/pedestrian	Police telephone number
Location of accident if different from scene	Charges pending
Date and time of accident	Victim med-flight from another state
Police department	Victim on bicycle in accident
Infant/child death data—Completed for all deaths of persons under 18.	
Mother's name	Drowning
Mother's date of birth	Asphyxiation/strangulation/suffocation
Mother's social security number	Severe unexplained injury
Mother's address	Motor vehicle accident in driveway
Sudden unexplained death under 1	Fire related
In custody of Department of Social Services	Suspected sexual assault
Possible suicide	Injury due to fall
Inflicted injury	Injury due to electrocution
Injury from firearm	Poison/chemical/drug ingestion
Injury not witnessed	Persons living in residence at time of death
Suicide data	
Suicide suspected	Poison/drug/chemical suspected
Organ donor	History of attempted suicide
Suicide note at the scene	Additional notes
Narrative	
Open text	
Prescription Medications at the scene	
Medication	Doctor
Dosage	Pharmacy
Date Filled	

Postmortem Examination Report (Autopsy Report)

The Postmortem Examination Report (Appendix D) entails a medicolegal investigation (autopsy) into the cause and manner of death due to violence, unnatural means, or to natural causes that require further investigation by the Commonwealth of Massachusetts. The autopsy report is comprised of sections, which prompt the medical examiner for descriptions.

At the top of each page of the autopsy report, the case number assigned to the decedent is provided. The cover page of autopsy report contains demographic information concerning the deceased as well as the cause and manner of death. The pathologist performing the autopsy signs this page. The next page contains four sections. The History section describes the circumstances of death as they are known at the time of the autopsy. The Autopsy section provides details as to the autopsy event itself. The External examination (of the body) section entails a visual description of the body and specifically describes the head, chest, abdomen, back, and upper and lower extremities. Rigidity and lividity are also described. The internal examination describes the decedent's internal state including aromatic odor to body organs, the anatomic relationships of all body organs. Included is a detailed examination is conducted on the cardiovascular system, respiratory system, digestive system, lymphoreticular system, endocrine system, urogenital system, musculoskeletal system, and the central nervous system. The Histology section describes organs or bones that are submitted for evaluation. The toxicology section details preliminary tests conducted and follow-up evaluation.

The medical examiner then provides the autopsy finding(s) and states his/her opinion regarding the cause and manner of death. If during the course of investigation, the medical examiner is of the opinion that the death may have been caused by the act or negligence of another, the medical examiner shall at once notify the district attorney within whose district the deceased was found or, if such act or negligence has occurred in a different district, the district attorney for such other district. The medical examiner shall also make available to the district attorney any and all records pertaining to such investigation.

The following table details the variables collected by the Postmortem Examination Report (Autopsy Report) as completed by the medical examiner.

Table 3. Postmortem Examination Report (Autopsy Report) Variables

Cover page	
Report status	Case number
Name of decedent	Age
Race	Gender
Address of decedent	Date of death
Date of autopsy	Cause of death
Other conditions	Manner of death
Signature of medical examiner	
History Section	
Events/circumstance of death described	

Table 3. Continued

Autopsy section		
Location of autopsy		Identifying marks
Who performed autopsy		Identification of the body made by
Evidence of treatment		
External examination section		
Description of body (height, weight, etc.)		Lividity
Rigidity		
Internal examination section		
Description of autopsy procedures		Description of decedent's internal cavities
Description of:		
Heart	Gastrointernal Track	
Lungs	Internal genetalia	
Liver	Neck	
Spleen	Scalp	
Urinary track	Brain	
Adrenals		
Toxicology section		
Preliminary tests described		Follow-up evaluations described
Histology		
Describes bones/organs submitted for evaluation		
Findings		
Describes autopsy findings		
Opinion		
Describes opinion of medical examiner of cause and manner of death		

Sharing Data

Data and statistics are shared, but the CME noted that he must be confident of the *4NSYS* system and the data, and also confident in who is analyzing or interpreting the data. The OCME lacks the time, staff, and resources to perform quality reviews of data. Data is forwarded to a number of federal agencies which include the Substance Abuse and Mental Health Services Administration (SAMHSA), the Occupational Health and Safety Administration, and the Consumer Product Safety Commission. The CME is mandated by law to report elder and child abuse deaths to the Massachusetts Department of Public Health. Homicide data and drug-related deaths are shared with police departments and district attorney's offices.

MASSACHUSETTS REGISTRY OF VITAL RECORDS AND STATISTICS

Background

The Massachusetts Registry of Vital Records and Statistics (Registry), within the Department of Public Health's Bureau of Health Statistics, Research, and Evaluation, is the agency legislatively responsible for the collection, processing, correction, and issuance of copies of birth, death (including death of fetuses over 20 weeks old or weighing over 350 grams), and marriage records which occurred in the Commonwealth. Additionally, divorce information, originating from the Massachusetts Probate and Family Court, is also collected and maintained at the Registry of Vital Records and Statistics. For the purposes of this report, the SAC interviewed the Assistant Registrar of the Registry of Vital Records and Statistics and the Project Coordinator regarding death certificate data. Both have extensive experience at the Registry and have an in-depth knowledge of the Registry data collection systems.

Death Certificates

The Massachusetts Death Certificate (Appendix E) is a two-sided form. On the front of the certificate, there are decedent, informant, disposition, and certifier sections. Decedent information is demographic in nature. The informant section details information of the person who informed the authorities of the death. Disposition data specifies the details of the disposition of the body. The certifier section is completed by the certifier of death and describes autopsy results, manner of death (e.g., natural, homicide, suicide), etc... Also in this section is a place for the date and time of the pronouncement of death and the name and title of the person who pronounced the death. At the very bottom, there is a place signatures of the board of health agent and the city/town's clerk necessary for the issuance of the burial permit. On the back of the certificate is an area for the decedent's military information. Also, the certifier completes a section similar to the decedent section on the front of certificate. The bottom portion of the form contains instructions for the completion of the certificate.

The following table details the variables collected by the Death Certificate.

Table 4. Death Certificate Variables

Decedent section	
Name	Education level
Sex	Age at last birthday
Date of death	Date of birth
City/town, County, of death	Birthplace
Hospital or other institution	Marital status
Hospital status of decedent (e.g. Inpatient)	Last spouse
Other location of decedent (e.g. Nursing home)	Occupation
Social security number	Type of business/industry
U.S. war veteran status	Residence Address
Hispanic origin	Father's full name, birthplace
Race	Mother's name, birthplace

Table 4. Continued

Informant Section	
Informant's name	Relationship
Address	
Disposition Section	
Method of immediate disposition	Location of disposition
Funeral service licensee or designee	Date of disposition
License number	Name and address of facility
Place of disposition	
Certifier Section	
Immediate cause of death	Signature/date of certifying physician
Underlying cause of death	Signature/date of certifying medical examiner
Other significant causes contributing to death	Hour of death
Autopsy performed	Pronouncement form
Autopsy results available prior to completion of cause of death	Date, time of pronouncement
Medical examiner notified	Pronouncer of death
Manner of death (e.g. natural, homicide)	Signature of health agent
Date, time, location, place of injury	Signature of town clerk
Military Service	
Date entered/discharged military service	Rating
Service number	Organization/outfit
Decedent's demographic data to be completed by certifier	
Decedent name	Sex
City/town, county of death	Date of death
Hospital, other status (e.g. inpatient)	

Completion of Death Certificates

The completion of a death certificate is a complex process with at least three persons completing portions of the certificate. Depending on where and/or how the person has died (hospital, nursing home, home, scene of homicide or accident), a doctor or medical examiner completes the immediate and underlying causes of death, manner of death, injury descriptions, and date, time, and place of death sections. The OCME may waive jurisdiction of cases referred to their office. In those cases, physicians are responsible for the preparation of the death certificate.

The funeral director or another designee then receives the certificate. The funeral director completes the demographic and burial portions of the certificate usually with the assistance of the decedent's family. The funeral director takes the certificate to the local board of health or town clerk for a disposition/removal/transportation permit. The board of health reviews the certificate to certify there are no corrections (no correctional fluid or crossed out errors are allowed by law) or omissions and signs the certificate on the date the burial permit is issued.

The board of health usually then sends the certificate to the town clerk, who approves the certificate by giving it a registered number and then signs and dates the certificate. The clerk makes certified copies for the funeral director. Keeping the original certificate, the clerk waits until the next reporting period to send the certificates to the Registry of Vital Records and Statistics.

Death Certificate Processing

Upon receipt, the Registry places the death certificates in batches of 100 and assigns a certificate number. A six-digit number, along with the year of the death, identifies each death. Boston assigns numbers in the range 000001-012999, while for the remainder of state the death identifier number begins with 013000. Records are examined for injuries occurring at work and for the death of an infant or child and are flagged for mandated reporting.

Massachusetts' mortality data has been entered into an electronic database since 1969. The database currently resides on the Registry's mainframe. The Registry currently relies on the Information Technology Services (ITS) at the Department of Public Health for technical support, with its last mainframe programmer just recently retired. Due to the lack of programmers, no variables can currently be added, deleted, or changed. Currently, the Registry contracts with an outside vendor to input the demographic data. Once a week, the vendor drops off a disk, containing the data, and the copies of the death certificates at the Registry. The Registry, in turn, gives the vendor more records to input. The Registry then runs error reports on the disk data and makes the necessary changes.

The data is then sent to the ITS where the demographic data is loaded onto the Department of Public Health's mainframe. Once the Registry Statistical Unit staff is notified that the records have been successfully loaded, the staff creates the National Center for Health Statistics (NCHS) Mortality Demographic file and sends the file to the NCHS bulletin board. Simultaneously, the ITS staff enters the medical information into SUPER-MICAR. SUPER-MICAR is the latest version of the *Mortality Medical Indexing, Classification, and Retrieval* system and is used to initially enter the cause of death data. The SUPER-MICAR data is then emailed back to the Registry.

At the Registry, nosologists, persons who code diseases, trained by the NCHS, clean any errors from the data, and code the cause of death according to the World Health Organization's International Classification of Diseaeses-10th Revision (ICD-10). The ICD-10 allows the international comparison of mortality data. A sequence check is then performed in SUPER-MICAR. If data are rejected, the nosologists will review it and make the proper adjustments for SUPER-MICAR to accept it. The SUPER-MICAR data is then sent to the NCHS bulletin board and the Department of Public Health mainframe. Occasionally, the NCHS will send back the data to the Registry for edits.

The Registry makes the necessary edits to the "pending investigation" death certificates. A pending investigation certificate is a death certificate filed by the medical examiner with the cause, manner, or any information relating to the medical examiner certification, left incomplete. Any change to an accepted/closed death record requires a legal amendment. To amend a record,

the individual requesting the amendment must be of legal standing and complete the *Affidavit and Correction of the Record*. The amendment must be one that is allowed under Massachusetts law and all the appropriate documentary evidence to substantiate the change must be presented.

Sharing Death Data

As stated previously, the Registry forwards its data, both the demographic and SUPER-MICAR, once a week to the NCHS. According to Massachusetts law, the death certificate is a public document. Researchers, genealogists, the general public, etc. are allowed to review and receive copies of death certificates. The Registry also shares data with the other Department of Public Health agencies, bureaus, and programs (AIDS Bureau, Occupational Heath Surveillance Program, Massachusetts Cancer Registry, etc.). The Bureau of Health Statistics, Research and Evaluation at the Department of Public Health, which the Registry of Vital Records and Statistics is a part of, annually publishes *Massachusetts Deaths*, utilizing the Registry of Vital Records and Statistics information. The report includes mortality trends, leading causes of death, heart disease and cancer, injuries, HIV/AIDS, Cause of Infant Death, future mortality objectives, and causes of death by community, Community Health Network Area (CHNA), and county. Although the death certificate does collect homicide and suicide data in the Manner of Death section, the Registry does not perform analysis on this. It does perform general analysis of the data once the file is ready to be "closed."

Future of Death Data Collection

The Registry plans to implement a web-based data collection system, "E-Vitals" to record birth, marriage, and death data. The Registry needs the cooperation of the contributors of death certificate data before implementing the new system. The Massachusetts Association of Funeral Directors has enthusiastically endorsed the new system. However, one of the major concerns is that with many providers contributing data at different points required data fields could be overlooked. It is hoped that with cooperation and the appropriate training, the "E-Vitals" system will eliminate the need for data entry at DPH and make the completion of the death certificate more efficient. Given that death certificate data is the most complex data the Registry collects, the death data will be the last data implemented in E-Vitals, with the collection scheduled to begin in 2004.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH, INJURY SURVEILLANCE PROGRAM

Background

The Injury Surveillance Program (ISP) of the Massachusetts Department of Public Health (DPH) was established in 1998 to integrate ongoing injury surveillance systems, specially focused projects, and surveillance activities into one comprehensive program. The mission of the ISP is to reduce mortality and morbidity from injury by tracking the incidence of and risk factors for injuries to Massachusetts' residents. The ISP is also responsible for coordinating a variety of injury surveillance systems and projects that advocate for, and support the efforts of injury prevention professionals at the state and local level.

The ISP is comprised of the Director, a Project Director, two Epidemiologists, a Hospital Coordinator, a Data Analyst, and a Vital Statistics Analyst.

Overview of Data Collection

To enhance the process of data collecting, the Director commented that there needs to be better communication and partnerships between public safety officials and public health officials to achieve their common goals through prevention efforts. A number of data sources are utilized to assess and describe the complexity of injuries identified in Massachusetts. These data sources enable the ISP to track incidence trends, outcomes, identify risk factors, and better understand the circumstances leading up to these injuries. The ISP receives data from the following sources.

The Massachusetts Department of Public Health analyzes the Massachusetts Hospital Discharge Data Set, the Emergency Department Injury Surveillance System (EDISS), the Weapons-Related Injury Surveillance System (WRISS), the Behavioral Risk Factor Surveillance Survey, and data from the Registry of Vital Records and Statistics. The Office of the Chief Medical Examiner provides the Massachusetts Medical Examiner Data Set, and the Youth Behavior Risk Factor Surveillance Survey is obtained from the Massachusetts Department of Education. The Fatality Analysis Reporting System, which contains data on all vehicle accidents involving a fatality, is received from the National Highway Traffic Safety Administration. Lastly, the Centers for Disease Control and Prevention makes available, death certificate data from the National Center for Health Statistics. Agencies send their data sets (considered "clean and closed") to the DPH, with updates only occurring if there is a significant problem with the data. Data files are obtained annually, except for EDISS and WRISS data, which is ongoing and continuously updated.

The data sets highlighted below include homicide and suicide data obtained from Massachusetts emergency departments.

The Emergency Department Injury Surveillance System (EDISS)

EDISS is a stratified random sample of 12 Massachusetts hospital emergency departments (EDs) that submit data on all injuries treated in the emergency department directly to the ISP. These

data comprise non-fatal injuries, non-fatal injuries requiring hospitalization, and fatal injuries, and are detailed in a year-end report. Variables include demographic information such as age, sex, race, and the type of injury sustained. These data, not collected prior to 1999, serve to augment hospitalization and death data by providing statewide estimates of injuries treated and released from emergency departments.

The Weapons-Related Injury Surveillance System (WRISS)

WRISS is an emergency department-based system that captures data on persons treated for gunshot wounds and violent-related sharp instrument wounds. Dating back to 1927, Massachusetts mandated health care providers to report shootings and stabbing incidents to state and local police departments. In 1990, WRISS expanded the existing form and tested it in hospitals in the Massachusetts communities of Springfield, Boston, and Lawrence/Methuen. As a result of the successful pilot phase, the system expanded to include all Massachusetts acute care hospital emergency departments by 1994. Currently, all Massachusetts EDs participate in WRISS, completing a standardized form to report a number of demographic and incident specific variables.

WRISS forms (Appendix F) are completed by hospital staff. The top third of the form contains victim information with the rest of the form containing information on the injury, location of wound on body, hospital/physician name, location where injury occurred, and whether or not police where contacted. This top portion makes a carbonless copy so one can be sent to the Massachusetts State Police and the other copy to either the local police department or hospital. The remaining copy is sent to DPH. On DPH's copy only the victim's first two letters of their last name is visible since the remaining spaces are shaded and do not copy to the bottom page. The remaining two-thirds of the form is for DPH use only; the police do not get a copy. There are 12 questions on the form. All but one variable requires the reporter to choose from a list of options.

Table 5. WRISS Variables

Medical record number	Police contacted
Name of victim (shaded—only first two letters recorded)	Attending Physician (shaded—not recorded)
Address of victim	Choice of how injury occurred
Date, time in	Relationship of person who harmed patient
Date of birth	Circumstance of injury
Age	Victim's race/ethnicity
Sex	Arrived via ambulance or airlift
Specifics of weapon	Disposition of case
Type of weapon	Location of incident
Location of wound on body	Alcohol intoxication by victim
Name, city of hospital	Narrative
City, state which injury occurred	

All hospitals send the WRISS form to DPH. DPH enters it into a Microsoft Access database and analysis is conducted using the statistical program SAS. Using WRISS, annual medical records reviews estimate that hospital reporting levels range between 80-90% for capturing gunshot wounds and 70-80% for capturing stabbing incidents treated in Massachusetts emergency departments. Data are analyzed and results are disseminated annually to injury prevention professionals, law enforcement personnel, and health and medical staff throughout the Commonwealth.

Child Fatality Review Teams

The Department of Public Health, in partnership with the Office of the Chief Medical Examiner (OCME) and county district attorneys, formed a partnership to review all fatalities of children under age 18. The DPH is represented on the state team, and each of the local teams. There are five teams located across the Commonwealth to review these deaths. Their function is not to necessarily initiate legal or prosecutorial intervention, but to determine if these fatalities could have been prevented. Eventually a database will be established.

Additional Death Data

To obtain data on homicides, ISP receives complete death certificates from the Registry of Vital Records and Statistics. In the past, some additional information such as circumstances of death has been obtained from the Office of the Chief Medical Examiner, but not consistently. Previously ISP would review NIBRS and SHR data from the Massachusetts State Police Crime Reporting Unit, but had to discontinue this analysis due to the lack of funding.

Sharing Data

The ISP frequently receives requests from individuals, agencies, and institutions for access to their data. The ISP generally does not re-release individual level data either because of an agreement with the originating source, or the preference to have the collecting agency contacted directly. Because the information is considered confidential, it may only be released in aggregate form. This protects individuals releasing the data from liability and prohibits the data from being subpoenaed.

Since a death certificate is public information the information contained on it is not confidential. DPH receives hospital discharge data and data from the Registry of Vital Records and Statistics, but will only release aggregate level data, not individual data. Any database DPH works with, aside from WRISS and EDISS, has been received from other sources, and as a result, they will not re-release data. However, they have provided specialized aggregate data, referred persons to the department of the original data source, or have arranged for a researcher to work with the data at DPH under supervision.

Suicides

The ISP noted that Massachusetts suicide rates have steadily risen while homicide rates have declined. The Director stated DPH needs better data on suicides and that prevention efforts must increase.

Conclusion

The information gathered from the interviews highlight the myriad of death data that is collected. Currently, 17 variables are collected by two or more agencies (Table 6).

Table 6. Homicide/Suicide Variables Collected by more than One of the Four State Agencies

Agency	Crime Reporting Unit	Office of the Chief Medical Examiner		Registry of Vital Records	Injury Surveillance Program
Report / *Variable*	*Supplemental Homicide Report*	*Case Report*	*Post Mortem Report*	*Death Certificate*	*WRISS*
Name of victim		X	X	X	
Victim's age	X	X	X	X	X
Victim's DOB		X		X	X
Date of death			X	X	
Victim's sex	X	X	X	X	X
Victim's race	X	X	X	X	X
Victim's ethnicity	X			X	X
Victim's residence		X		X	X
Marital status		X		X	
D.O.A.		X		X	
Suicide or suspected		X	X	X	X
Alcohol evident at scene		X			X
Cause of Death			X	X	
Location of offense/death	X	X		X	X
Weapon used	X				X
Victim/offender relationship	X				X
Circumstance of offense	X				X
Reporter of Death		X		X	
Narrative		X	X		X

There are a few variables that could assist in linking cases across systems. Three agencies collect victim address information and two agencies collect the name of the victim. Suicide data is collected by three of the agencies. Not as reliable but a linkage could possibly be made through victim demographic data (e.g., age, sex, race). However, because of varying agency definitions of what constitutes a homicide, it would be difficult to get consistent number of cases across the agencies.

All agencies amend data when the situation calls for such an action. Also, the agencies have shared data in the past, often because the data, by law, is public information. But agencies feel more comfortable knowing how their data will be analyzed, what their data will be used for, and the qualifications of the person performing the analysis.

Interviewed personnel, while experienced and very dedicated, face obstacles that affect their ability to administer their data. One difficulty that faces all agencies is the lack of funds. Agencies with limited funding have a limited number of staff who are often taxed with multiple assignments and responsibilities. Without the proper staffing, only the bare minimum data tasks are performed. Interviewees stressed that while essentials were being completed, more in-depth data cleaning and analysis could be accomplished with more staff dedicated to the data. Limited funding also affects the equipment that collects, stores, and analyzes the data. If equipment is outdated or does not have the appropriate capacity, the data and its outcome are affected.

All agencies were open to the idea of more interagency cooperation and coordination. Personnel realize the overlapping issues and concerns surrounding homicide and suicide in the public safety and public health arenas. Such agency data coordination could improve the overall health and safety of the citizens of the Commonwealth. It is expected that all partners in this effort will continue to meet regularly through the Violent Death Working Group, and work collaboratively on the National Violent Death Reporting System grant recently awarded by the Centers for Disease Control to the Department of Public Health.